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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/961,368	09/25/2001	Seiichi Tomihara	H-1011	5957

7590 06/19/2002

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EXAMINER

PERT, EVAN T

ART UNIT

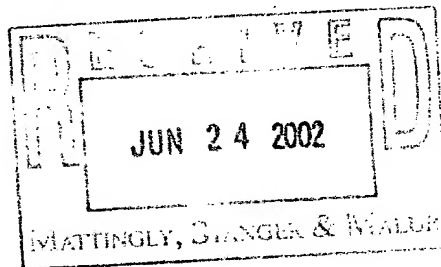
PAPER NUMBER

2829

DATE MAILED: 06/19/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.



Office Action Summary

Application No.

09/961,368

Applicant(s)

TOMIHARA, SEIICHI

Examiner

Evan T. Pert

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-23 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 12-23 and 25 in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election *without traverse* (MPEP § 818.03(a)).

Accordingly, claims 1-11 and 24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected invention, there being no allowable generic or linking claim.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on October 5, 2000. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-23 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The meaning of "thin film wiring board," in claims 12, 13, 15, 16, 18, 19, 20 and 21, is unclear. For purposes of examination, any "film tape" with wiring patterns on it is a "thin film wiring board".

The meaning of "deformable following shrinkage on curing of a molding resin," in claims 12, 13, 15, 16, 18, 19, 20, 21 and 25, is unclear. For purposes of examination, this limitation is taken to mean that the "thin film wiring board" is deformed when the resin cures or the board remains flexible when the resin cures.

The meaning of "lump" with respect to the mass of resin sealing the "semiconductor chips," in claims 12, 13, 15, 16, 18, 19, 20 and 21, is indefinite since Merriam Webster defines *lump* as any mass having *indefinite* size and shape. For purposes of examination, all masses of resin are some kind of "lump."

The terms "down cutting method" and "up cutting method," in claims 12, 14, 15 and 22, are unclear with respect to the plain meaning of the terms [MPEP 2111]. It is unclear if the terms relate to the direction of a blade's rotation, or the direction of blade advancement *through* the film substrate, or both. For purposes of examination, punching out a film tape is a combination of "up cutting" and "down cutting", or is just a "down cutting", depending on perspective of the punch's "cutting blade."

For purposes of examination, a rotating blade of saw moving counter-clockwise with respect to the lateral direction of the blade is also an "up cutting" while a blade rotating clockwise with respect to the lateral direction of the blade is also a "down cutting".

The term "cutting allowances," in claims 16, 17 and 21, is unclear in how it differs from notoriously well known *scribe lines*, *streets* or *dicing lanes*, simply being the region cut away by the width of a saw blade, understood by a layperson with respect to the lane turned to sawdust by the width of a wood-saw blade.

The term "partition lines," in claims 16, 18 and 21, is unclear in what it is supposed to define over the *inherent boundaries* that surround any semiconductor chip device mounting on a thin film tape. For purposes of examination, all devices to be removed from film tape have inherent partition lines that inherently surround each device to define the device's "cut lines." The claimed "partition lines" are interpreted as being the centerline of notoriously well known cut lines that surround a device to be cut or punched out of a thin film tape.

The term "thin-walled portions" in claim 20 is unclear. For purposes of examination, all thin film tapes have "thin-walled portions" at every portion.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamasaki et al. (U.S. Patent 5,970,320 published October 19, 1999).

Yamasaki et al. teaches applicant's claimed methodology for packaging a semiconductor of a "resin-sealed type" (Col. 1, line 11) as "prior art" in their patent:

Yamasaki et al. teach "providing a thin film wiring board which is deformable following shrinkage on curing of a molding resin and which has a plurality of partitioned device areas" [col. 1 with Fig. 16]. Regarding the claimed "through-holes at the corner portions" which sealing resin flows into, and which are then cut through, such is taught as ref 5 in view of col. 1, lines 30-38 taken with Fig. 16, such that there is a step of "sealing the interiors of the through holes with resin."

Yamasaki et al. teach "mounting semiconductor chips (6) respectively on the device areas ("in every one frame of film tape 2") and teach "connecting surface electrodes (22) of chip (6) to wiring electrodes 4 (inherently "conductive members"), which connect the chip "electrically."

Yamasaki et al. teach forming a lump of resin on sealing areas to cover and seal individual devices both as "prior art" (causing *deformation* forces F in Fig. 16 and filling holes 5) and as in their invention, without cutting the through-holes.

Yamasaki et al. explain that the device chip 6 is "cut" from the film tape through the cut-hole lines 1 and corner-holes 5 [Figs. 15 and 16], which is inherently cut with a "blade" since all cutting tools can be considered to inherently have a cutting blade.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki et al., as applied to the limitations addressed in the rejection of claim 25 above, and further in view of either Ishigaki or Nawamaki et al., or both, or by consideration of notoriously well known "punching" operations in view reasoning for rejections under 35 USC 112 set forth in item 4 above.

The claimed "partition lines" and "cutting allowances" that are equal to or greater than the width of the cutting blade are inherent to the disclosure of Yamasaki et al. since die-cut lines 1 are inherently sized to accommodate a saw-blade width.

The concept of cutting one way and then perpendicular to remove a square-shaped device, as in claims 13-15, was notoriously well known at the time of applicant's claimed invention: For example see Figs. 2-4 of Ishigaki. It would have been obvious at the time of applicant's invention to make two cuts perpendicular to each other in order to remove a device with 90°-angled corners since a saw cannot readily turn at an abrupt right angle.

Yamasaki et al. refers to known "die cut portions 1", but is silent with respect to the *details* of a notoriously well known cutting operations for removing a semiconductor device from a known continuous film tape.

While punching out devices is notoriously well known as a common way to remove resin sealed devices from a thin film tape carrier, it would have been obvious to one of ordinary skill in the art at the time of applicant's claimed invention to use a "down cutting" method or a "combination of down cutting and up cutting.":

One of ordinary skill in the art would be motivated to use a combination of "down cutting and up cutting" per Nawamaki et al. since "yield and reliability are improved." [abstract]. Alternatively, or in combination, one of ordinary skill in the art would have been motivated to use a "down cutting" method "to sustain the good cutting state" as is taught by Ishigaki [abstract].

Alternatively, or in combination, one of ordinary skill in the art would have been motivated to punch out devices as is notoriously well known in the art from either the front or backside, depending on the preferred result by readily achieved experimentation with each of two positions for cutting with a punch.

One of ordinary skill in the art would have been motivated to punch each of the front and the back, to determine which punch direction "works better," by simple and obvious experimentation.

Regarding claim 23, Yamasaki et al. disclose notoriously well known polyimide as a preferable material for the thin film wiring board [col. 6, lines 1-9].

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Freyman et al. (U.S. Patent 5,985,695) is cited for teaching a flexible BGA (FBGA) using polyimide tape [e.g. col. 2, lines 5-19].

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan T. Pert whose telephone number is 703-306-5689. The examiner can normally be reached on M-F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 703-308-1680. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ETP
June 17, 2002


EVAN PERT
PATENT EXAMINER